

09/488,865

FILE 'USPATFULL' ENTERED AT 10:01:16 ON 03 SEP 2002

L2 4432 S DETERMIN### AND (ADDRESS## (5A) FAIL####)

L3 178 S DETERMIN### AND (PHYSICAL LOCATION# (P) FAILURE#)

L5 506923 S DISPLACE##### OR MIRROR FACTOR#

L6 6412 S ADDRESS## (P) L5

L7 572 S DISPLAC### AND (INFORMATION (P) LOOK UP TABLE#)

L8 40 S REPEATABLE UNIT#

L9 20 S L2 (P) L3

L10 1 S L9 AND L5

L11 1 S L6 AND L10

L12 7 S L8 AND (L2 OR L3 OR L5 OR L6 OR L7)

L13 26307 S LOOK UP TABLE#

L14 8846 S BUFFER COORDINAT### OR BUFFER CONTENT# OR PHYSICAL ADDRESS##

L15 570 S L13 AND L14

L16 86 S ELECTRICAL ADDRESS##

L17 7708 S PHYSICAL ADDRESS##

L18 6998 S 16 AND L17

L19 450 S L18 AND L15

L20 55 S L19 AND L6

L21 1 S L20 AND (L2 OR L3)

SAVE PHUNG/L ALL

=> d l21 ibib ti

L21 ANSWER 1 OF 1 USPATFULL

ACCESSION NUMBER: 94:21036 USPATFULL

TITLE: Selective dump method and apparatus

INVENTOR(S): Shingai, Randall K., San Jose, CA, United States

PATENT ASSIGNEE(S): Tandem Computers Incorporated, Cupertino, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5293612		19940308
APPLICATION INFO.:	US 1992-870735		19920416 (7)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1989-350674, filed on 11 May 1989, now abandoned		
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Dixon, Joseph L.		
ASSISTANT EXAMINER:	Elmore, Reba I.		
LEGAL REPRESENTATIVE:	Townsend and Townsend		
NUMBER OF CLAIMS:	2		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)		
LINE COUNT:	541		
TI	Selective dump method and apparatus		

=> d l10 ibib ti

L10 ANSWER 1 OF 1 USPATFULL

ACCESSION NUMBER: 96:27965 USPATFULL

TITLE: Highly available fault tolerant relocation of storage with atomicity

INVENTOR(S): Baird, Robert, San Jose, CA, United States
Bozman, Gerald P., Oakland, NJ, United States

Eisenberger, George, White Plains, NY, United States
 Kamerman, Albert, Pound Ridge, NY, United States
 Lett, Alexander S., Mahopac, NY, United States
 McAssey, John J., Monroe, NY, United States
 Myers, James J., San Francisco, CA, United States
 Tetzlaff, William H., Mount Kisco, CA, United States
 Wang, Pong-sheng, San Jose, CA, United States
 PATENT ASSIGNEE(S): International Business Machines, Armonk, NY, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5504857		19960402
APPLICATION INFO.:	US 1993-26278		19930304 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1990-535083, filed on 8 Jun 1990, now abandoned		
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Beausoliel, Jr., Robert W.		
ASSISTANT EXAMINER:	Snyder, Glenn		
LEGAL REPRESENTATIVE:	Brodie, R. Bruce		
NUMBER OF CLAIMS:	4		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)		
LINE COUNT:	529		
TI	Highly available fault tolerant relocation of storage with atomicity		

=> d l11 ibib ti

L11 ANSWER 1 OF 1 USPATFULL
 ACCESSION NUMBER: 96:27965 USPATFULL
 TITLE: Highly available fault tolerant relocation of storage with atomicity
 INVENTOR(S): Baird, Robert, San Jose, CA, United States
 Bozman, Gerald P., Oakland, NJ, United States
 Eisenberger, George, White Plains, NY, United States
 Kamerman, Albert, Pound Ridge, NY, United States
 Lett, Alexander S., Mahopac, NY, United States
 McAssey, John J., Monroe, NY, United States
 Myers, James J., San Francisco, CA, United States
 Tetzlaff, William H., Mount Kisco, CA, United States
 Wang, Pong-sheng, San Jose, CA, United States
 PATENT ASSIGNEE(S): International Business Machines, Armonk, NY, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5504857		19960402
APPLICATION INFO.:	US 1993-26278		19930304 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1990-535083, filed on 8 Jun 1990, now abandoned		
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Beausoliel, Jr., Robert W.		
ASSISTANT EXAMINER:	Snyder, Glenn		
LEGAL REPRESENTATIVE:	Brodie, R. Bruce		
NUMBER OF CLAIMS:	4		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)		
LINE COUNT:	529		
TI	Highly available fault tolerant relocation of storage with atomicity		

L12 ANSWER 1 OF 7 USPATFULL

ACCESSION NUMBER: 2001:143740 USPATFULL
 TITLE: Programmable RISC-DSP architecture
 INVENTOR(S): Arbel, Ygal, Belmont, CA, United States
 PATENT ASSIGNEE(S): National Semiconductor Corporation, Santa Clara, CA,
 United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6282631	B1	20010828
APPLICATION INFO.:	US 1998-220158		19981223 (9)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	GRANTED		
PRIMARY EXAMINER:	Donaghue, Larry D.		
LEGAL REPRESENTATIVE:	Skjerven Morrill MacPherson LLP., Kwok, Edward C., Marino, Fabio E.		
NUMBER OF CLAIMS:	12		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	27 Drawing Figure(s); 18 Drawing Page(s)		
LINE COUNT:	2697		
TI	Programmable RISC-DSP architecture		

L12 ANSWER 2 OF 7 USPATFULL

ACCESSION NUMBER: 2001:137715 USPATFULL
 TITLE: Adaptive electronic transmission control system and
 strategy for nonsynchronous automatic transmission
 INVENTOR(S): Jain, Pramod K., Farmington Hills, MI, United States
 Kuhn, Howard Cecil, Farmington Hills, MI, United
 States
 Vodicka, Ronald James, West Bloomfield, MI, United
 States
 PATENT ASSIGNEE(S): Ford Global Technologies, Inc., Dearborn, MI, United
 States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6278926	B1	20010821
APPLICATION INFO.:	US 2000-665353		20000918 (9)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	GRANTED		
PRIMARY EXAMINER:	Cuchlinski, Jr., William A.		
ASSISTANT EXAMINER:	To, Tuan C		
LEGAL REPRESENTATIVE:	McKenzie, Frank G.		
NUMBER OF CLAIMS:	12		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	21 Drawing Figure(s); 13 Drawing Page(s)		
LINE COUNT:	1238		
TI	Adaptive electronic transmission control system and strategy for nonsynchronous automatic transmission		

L12 ANSWER 3 OF 7 USPATFULL

ACCESSION NUMBER: 1999:127246 USPATFULL
 TITLE: Pre-loaded elastomeric accumulator for hydraulic
 system
 INVENTOR(S): Agnew, David L., Clarkson, MI, United States
 PATENT ASSIGNEE(S): ITT Manufacturing Enterprises, Inc., Wilmington, DE,
 United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5967623		19991019
APPLICATION INFO.:	US 1997-876002		19970613 (8)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Butler, Douglas C.
LEGAL REPRESENTATIVE: Rader, Fishman & Grauer PLLC
NUMBER OF CLAIMS: 11
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 13 Drawing Figure(s); 6 Drawing Page(s)
LINE COUNT: 489
TI Pre-loaded elastomeric accumulator for hydraulic system

L12 ANSWER 4 OF 7 USPATFULL

ACCESSION NUMBER: 92:2081 USPATFULL
TITLE: Method and apparatus for quantitatively evaluating roll hardness
INVENTOR(S): Adams, Richard J., Rockton, IL, United States
Baum, Scott A., Rockton, IL, United States
Roisum, David R., Neenah, WI, United States
Oliver, William K., Rockton, IL, United States
PATENT ASSIGNEE(S): Beloit Corporation, Beloit, WI, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5079728		19920107
APPLICATION INFO.:	US 1990-472780		19900131 (7)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Black, Thomas G.		
ASSISTANT EXAMINER:	Ramirez, Ellis B.		
LEGAL REPRESENTATIVE:	Leydig, Voit & Mayer		
NUMBER OF CLAIMS:	17		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	7 Drawing Figure(s); 3 Drawing Page(s)		
LINE COUNT:	756		
TI	Method and apparatus for quantitatively evaluating roll hardness		

L12 ANSWER 5 OF 7 USPATFULL

ACCESSION NUMBER: 89:42670 USPATFULL
TITLE: Perceived contrast of liquid crystal displays
INVENTOR(S): Demke, Kent R., Colorado Springs, CO, United States
Lubart, Neil D., Austin, TX, United States
PATENT ASSIGNEE(S): International Business Machines Corporation, Armonk, NY, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4834506		19890530
APPLICATION INFO.:	US 1987-69675		19870702 (7)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Miller, Stanley D.		
ASSISTANT EXAMINER:	Mai, Huy Kim		
LEGAL REPRESENTATIVE:	Bryant, Andrea P.		
NUMBER OF CLAIMS:	12		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	7 Drawing Figure(s); 3 Drawing Page(s)		
LINE COUNT:	369		
TI	Perceived contrast of liquid crystal displays		

L12 ANSWER 6 OF 7 USPATFULL

ACCESSION NUMBER: 83:57873 USPATFULL
TITLE: Method and apparatus for producing a half-tone reproduction
INVENTOR(S): Hammes, Philippe, Massy, France
PATENT ASSIGNEE(S): Crosfield Electronics Limited, London, England

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4419690		19831206
APPLICATION INFO.:	US 1981-296670		19810827 (6)

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1980-28176	19800901
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	Granted	
PRIMARY EXAMINER:	Masinick, Michael A.	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak and Seas	
NUMBER OF CLAIMS:	24	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	30 Drawing Figure(s); 17 Drawing Page(s)	
LINE COUNT:	992	
TI	Method and apparatus for producing a half-tone reproduction	

L12 ANSWER 7 OF 7 USPATFULL

ACCESSION NUMBER: 72:48854 USPATFULL
 TITLE: METHOD OF AND APPARATUS FOR PHOTOPRINTING CONDUCTOR PATTERNS ON THE CURVED SURFACES OF TRANSDUCERS
 INVENTOR(S): Malsky, Herbert, Belmont, MA, United States
 PATENT ASSIGNEE(S): Massachusetts Institute of Technology, Cambridge, MA, United States (2)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 3694080		19720926
APPLICATION INFO.:	US 1970-17691		19700309 (5)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Matthews, Samuel S.		
ASSISTANT EXAMINER:	Adams, Russell E.		
LEGAL REPRESENTATIVE:	Cooch; Thomas, Smith, Jr.; Arthur A., Santa; Martin M.		
NUMBER OF CLAIMS:	7		
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 2 Drawing Page(s)		
LINE COUNT:	331		
TI	METHOD OF AND APPARATUS FOR PHOTOPRINTING CONDUCTOR PATTERNS ON THE CURVED SURFACES OF TRANSDUCERS		

=> d 121 kwic

L21 ANSWER 1 OF 1 USPATFULL

SUMM . . . a computer. By knowing the contents of the memory locations, registers, and the like, the analyst can, in most cases, **determine** the source of the error or pathologic condition. This enables the analyst to **determine** what, if any, alterations to the software and/or hardware need to be undertaken to prevent or reduce the recurrence of. . .

DRWD FIG. 1 is a schematic depiction of a translation from a virtual address to a physical address using either a page table of a TLB;

DETD Referring to FIG. 1, in a typical virtual memory system, a virtual **address** 10 includes a first portion 11, which indicates a virtual page **address**, and a **displacement** or offset portion 12 which specifies the **address** of a byte within the virtual page. The virtual page **address** is translated into a physical page **address** using a **look-up** table 13. For example, one or more page table entries (PTE) can be provided which contain a plurality of words, each having a virtual page **address** 14a-14f as an index portion, and a corresponding

physical page **address** 15a-15f concatenated together. When using the page table, the virtual page **address** portion 11 of the requested virtual **address** 10 is matched with the index portion 14a-14f of an entry in the page table. The corresponding physical page **address** 15a-15f is then used, such as by combining the physical page **address** 15a-15f with the **displacement** portion 12 of the virtual **address** to provide the required physical byte **address** 16.

DETD When a virtual-to-physical translation is needed, the TLB 17 is accessed

to **determine** whether the required translation can be obtained from this fast memory portion. If the required page is not in the.

DETD . . . written to storage locations in the TLB. These addresses are encoded in that the TLB contains an indication of the **physical address**, coupled to an indication of the virtual address.

"Encoding" includes the trivial case in which the "encoded" address is the.

DETD In one preferred embodiment, there are 16 pages of TLB. The tape dump proceeds by first dumping the first half of the TLB and then the second. . . page entry in the TLB is the "absent" bit. When the computer system is first powered-up (or after a power **failure**), the **physical address** portions of the TLB are 0-filled and the absent bit for those portions is set. As pages are referenced, entries. . . corresponding absent bits are reset. Normally, then, the absent bit will be set only for those entries which have the **physical address** portion 0-filled (except for the set absent bit). There are certain situations, however, in

which

the absent bit is set, and yet there is useful data in the **physical address** portion of the corresponding TLB entry. One such example occurs when there has been a page fault. Following a page. . . a case, the tape dump microcode is configured to dump an entry which has the "absent" bit set, provided the **physical address** portion of the entry is not 0-filled.

DETD . . . possible. Such updating is possible because the "absenting" of a TLB entry only invalidates the portions that relate to a **physical address**. The portion of the TLB entry that contains an indication of a virtual address is not invalidated when a TLB. . . use, its underlying Page Table Entry can be inspected. If the underlying PTE contains a valid physical page number, the **physical address** portion of the TLB entry can be updated with that physical page number. In cases where actually-absent pages cannot be updated, physical page 0 (i.e., the page whose **physical address** is 0, containing system information) will be substituted for the absent page. In this context, physical page 0 acts as.

DETD . . . first half of PTC are dumped 80. The dumping is accomplished by

referring to each entry in the TLB, and **determining** the corresponding **physical address** for each entry. When that **physical address** is determined, the contents of memory at that **physical address** are sent to the tape drive 48 along communication line 52, and are recorded on the tape drive 48.

DETD . . . table (SPT) 96. Typically, page 0 of physical memory will first

be dumped. Physical page 0 is the page having **physical address** 0. It contains certain system information, including an identification of the processor type and the physical memory size. By dumping page 0, the processor type 32 can be **determined**. This is important in computers having a heterogeneous multiprocessor configuration in which not all of the multiple processors are of.

=> d 110 kwic

L10 ANSWER 1 OF 1 USPATFULL

SUMM . . . a hierarchical order on a collection of items. The tree organization is frequently used to define page directories and to **determine** access rights and privileges. Structurally, a tree is a type of graph. That is, tree comprises a collection of nodes. . .

SUMM . . . to the method of this invention, maintenance of data in a consistent state even in the presence of a single **failure** involves atomically shadow copying and amending directories onto a **failure** independent medium other than that used for the original page. The copying and amending is invoked for each referenced page. . . pages without having to necessarily change the physical or absolute location of the pages in real storage. Conversely, changing the **physical location** of one or more pages would not invalidate the logical addresses expressed by applications running on the CPU.

SUMM . . . or page group availability to CPU executing applications. This is accomplished by (a) creating each new page at an absolute **address** on a first **failure** independent storage device and recording the path thereto as two levels of indirection in a directory , and (b) responsive. . .

DETD The storing and accessing of a group of related pages, where the absolute address comprises an initial reference (device address)+ **displacement** (Offset) reduces directory and concordance size. However, the SD could also be formed on a page level. This would require. . .

DETD . . . the absolute address of DASD 1 Offset 3. The shadow copy
RP3300 of the pages RP1-RP100 is located on a **failure** independent medium at the absolute **address** of DASD 17 Offset 2788.

CLM What is claimed is:
. . first logical address and counterpart second logical address for the page or group, and writing the page at the absolute **address** on a first **failure** independent device in the storage subsystem; and (b) responsive either to each write update or to each interrupt in establishing. . . said counterpart address in said first logical address space from its current addresses in the second logical address and absolute **address** spaces to another **failure** independent device in the storage subsystem at new addresses in the second logical and absolute address spaces, and, atomically updating.

=> d l11 kwic

L11 ANSWER 1 OF 1 USPATFULL

SUMM . . . a hierarchical order on a collection of items. The tree organization is frequently used to define page directories and to **determine** access rights and privileges. Structurally, a tree is a type of graph. That is, tree comprises a collection of nodes. . .

SUMM . . . to the method of this invention, maintenance of data in a consistent state even in the presence of a single **failure** involves atomically shadow copying and amending directories onto a **failure** independent medium other than that used for the original page. The copying and amending is invoked for each referenced page. . . pages without having to necessarily change the physical or absolute location of the pages in real storage. Conversely, changing the **physical location** of one or more pages would not invalidate the logical addresses expressed by applications running on the CPU.

SUMM . . . or page group availability to CPU executing applications. This is accomplished by (a) creating each new page at an absolute **address** on a first **failure** independent storage device

and recording the path thereto as two levels of indirection in a directory, a (b) responsive.

DETD The storing and accessing of a group of related pages, where the absolute **address** comprises an initial reference (device **address**)+**displacement** (Offset) reduces directory and concordance size. However, the SD could also be formed on a page level. This would require a logical **address** and an absolute **address** for each primary copy of a page and another logical and absolute **address** pair (tuple) for each shadow page.

DETD . . . the absolute address of DASD 1 Offset 3. The shadow copy RP3300 of the pages RP1-RP100 is located on a **failure** independent medium at the absolute **address** of DASD 17 Offset 2788.

CLM What is claimed is:

. . . first logical address and counterpart second logical address for the page or group, and writing the page at the absolute **address** on a first **failure** independent device in the storage subsystem; and (b) responsive either to each write update or to each interrupt in establishing. . . said counterpart address in said first logical address space from its current addresses in the second logical address and absolute **address** spaces to another **failure** independent device in the storage subsystem at new addresses in the second logical and absolute address spaces, and, atomically updating.

=> d 112 kwic 1-7

L12 ANSWER 1 OF 7 USPATFULL

DETD . . . (A block is 192 IEC-958 frames, IEC-958 frames, representing 32 msec of time, and which is the smallest containing a **repeatable unit** single AC-3 frame of the SPDIF of compressed format.) data.)

MPEG SPDIF

Layer 1 3,072 bytes 1536 bytes

Layer 2 9,216 bytes 1536. . .

DETD addr: a 12-bit signed value, **address displacement** relative to the current PC in the `e` cycle.

DETD 2. the addr field is a **displacement** relative to the current PC in the `e` cycle, which is PC+2 relative to the PC that points to the.

DETD addr: a 12-bit signed value, **address displacement** relative to the current PC in the `e` cycle.

DETD 2. the addr field is a **displacement** relative to the current PC in the `e` cycle, which is PC+2 relative to the PC that points to the.

L12 ANSWER 2 OF 7 USPATFULL

DETD . . . pressure control 178 distributes a signal pressure to the main oil pressure regulator 180, which regulates the pressure of fixed **displacement** pump 182 for the transmission 124. Regulated pressure is distributed to line pressure passage 184, which communicates with an intermediate. . .

DETD . . . phase of the shift. This adaptive control provides consistent shift quality throughout the life of the transmission by compensating for **repeatable unit**-to-unit system variations, such as a change in the coefficient of friction of the friction elements, spring loads, slow varying parameters. . .

L12 ANSWER 3 OF 7 USPATFULL

SUMM of the elastomeric member upon positioning in its as-installed position. This arrangement has the advantage of providing simple, accurate and **repeatable** (unit to unit) pre-loading of the elastomeric member.

DETD 88 formed in bore 70 proximate the opening thereof. Snap ring 86 limits the downward (as viewed in FIG. 7) **displacement** of closure member 78. A spring 90 compressively simultaneously urges piston 72 upwardly and closure member 78 downwardly from their. . .

L12 ANSWER 4 OF 7 USPATFULL

DETD direction generally indicated by the double-headed arrow 67. A spring mechanism 68 loads the modified head 36a to a position **displaced** from the roll by compression of the spring; release of a trigger mechanism 69 serves to release the head 68a. . .

DETD to force impulse or velocity. The manner in which those signals are utilized to provide an output in consistent and **repeatable units** will be described in connection with FIGS. 5 and 6. However, before turning to those figures, it will be noted. . .

L12 ANSWER 5 OF 7 USPATFULL

DETD energizing the liquid crystal. The width of the gap or inter-electrode spacing and the geometry of the pel, the smallest **repeatable unit**, may be determined in accordance with the present invention and implemented during manufacture of the electrode by appropriate choice of. . .

CLM What is claimed is:

. . . . on a substrate parallel electrodes in two sets of electrodes, for superposition relative to each other at a predetermined angular **displacement**, for defining at each intersection of superimposed electrodes active display elements such that within each set of parallel electrodes, inter-electrode. . .

L12 ANSWER 6 OF 7 USPATFULL

DETD colour separations may occupy successive sections (e.g. 28, 30)

of the perimeter of one output drum, they may be relatively **displaced** (as at 30, 32) along the axis of the drum, or they may be arranged on different drums. The original. . .

DETD this system to work, H1 and H2 cannot represent points outside a dot area, the dot area being the smallest **repeatable unit** of the dot pattern. Therefore it is necessary for the position computer to detect the crossing of the border by. . .

DETD revolution of the drum. The same is true of the magenta and black surfaces, their section of the drum being **displaced** longitudinally. The exposing heads are contained in an assembly 26

which is movable longitudinally. In this example, one position computer. . .

L12 ANSWER 7 OF 7 USPATFULL

AB Method of and apparatus for positioning and photoprinting with high accuracy a magnetic or electrically conducting pattern of **repeatable units** on the curved surfaces of revolution of a transducer. The curved surface is placed on an indexing mount, and a . . . image of the unit on the photoresist-coated surface. The surface is then rotated relative to the mask through an angular **displacement** corresponding to the desired distance between units of the pattern. The light again impinges through the mask, and another unit is exposed. The process is continued until a full revolution is achieved, and a complete pattern of **repeatable units** is formed. Where the mask is mounted on an indexing mount, the process is as aforementioned, except that the mask. . .

SUMM . . . a printed conductor pattern. The pattern, which may assume any of a variety of configurations, essentially comprises a series of **repeatable units**, each unit, in turn, comprising one or more interconnected conductor lines. Where the device is electromagnetic in nature, one common. . .

SUMM Conventionally, to photoprint a conducting pattern of **repeatable units** on a rotor or stator element, a master pattern including all units is fabricated. Usually, the pattern is inscribed on. . . the pattern is developed and etched. When applied to curved surfaces rather than discs, the negative of the pattern of **repeatable units** is wrapped around the curved surface making intimate contact with it, whereupon it is then exposed. The curved surface itself. . . is coated on the copper. An alternate technique for curved surfaces is to expose, develop and etch the pattern of **repeatable units** on a thin, flat, flexible strip of copper-clad plastic laminate. The strip is then wrapped around and cemented to the. . .

SUMM . . . general object of the invention to provide a method of and apparatus for positioning and photoprinting a predetermined pattern of **repeatable units** on any curved surface of revolution with a high degree of angular accuracy and unit uniformity.

SUMM . . . is another object of the invention to provide a method of and apparatus for positioning and photoprinting conducting patterns of **repeatable units** on a curved surface of revolution with minimum diametrical tolerance errors.

SUMM . . . corresponding to the type of photoresist material. The curved surface is then rotated relative to the mask through an angular **displacement** corresponding to the predetermined pattern, and the light is again directed through the mask onto the surface. The aforementioned process. . .

DETD . . . work or through photography. (However, it may also comprise appropriately shaped and coated quartz or glass.) The shape of the **repeatable unit** to be exposed is outlined on the surface of mask 12 by the appropriate combination of opaque and transparent sections. . .

DETD According to the process, as rotor surface 22 is **displaced** to each successive location via rotation of indexing mount 30, as aforementioned, secondary mask 10 alternates between its first and. . .

DETD . . . only where the particular pattern configuration requires, as in the preferred embodiment, the development of a conducting path between the **repeatable units** of the overall pattern. In this respect, it is obvious that the shape of both the primary and secondary mask. . .

CLM What is claimed is:
. . . said surface; f. means for rotating said primary mask and said curved surface relative to each other through an angular **displacement** corresponding to said
. . . between said light source and said primary mask and moveable relative to said primary mask for printing connections between said **repeatable units**.
. . . and for directing said light through said secondary mask and said primary mask onto said curved surface, thereby exposing said **repeatable unit** onto said surface; h. means for controlling said exposure time for a predetermined time period; i.
means for rotating said indexing mount relative to said primary mask through an angular **displacement** corresponding to said predetermined

6. A method of positioning and photoprinting a predetermined conducting pattern of **repeatable units** on the curved surface of

revolution of transducer, said surface being coated with a film conductor which in turn, . . . unit onto said surface; c. rotating said curved surface and said primary mask relative to each other through

an angular **displacement** corresponding to the predetermined pattern; d. repeating said exposing and said rotating through a full revolution, thereby forming a complete pattern of **repeatable units**; and

. . . to prevent the passage of said light through a predetermined section of said primary mask, thereby printing connections between said **repeatable units**.